

II AMENDMENTS2.1 AMENDMENTS TO THE CLAIMS

Amend claims 1-40 without acquiescence or prejudice as follows.

Y
C
Cm

--1. (Amended) A communication system comprising:
a digital input circuit [for] generating a plurality of digital input signals;
a signature circuit [for] coupled to the digital input circuit and generating a plurality of signature signals, where each of the plurality of signature signals is [being] generated in response to one of the plurality of digital input signals [generated by said digital input circuit], and where each of the plurality of signature signals has a signature that is different from the signature of each of the other ones of the plurality of signature signals;
a multiplexing circuit [for] coupled to the signature circuit and generating a multiplexed signature signal by combining the plurality of signature signals [generated by said signature circuit];
a transmitter [for] coupled to the multiplexing circuit and transmitting the multiplexed signature signal [generated by said multiplexing circuit] to a remote location;
a receiver located at the remote location [for] and receiving the multiplexed signature signal transmitted by said transmitter; and
a demultiplexing circuit [for] coupled to the receiver and generating a plurality of digital output signals, where each of the plurality of digital output signals [corresponding] corresponds to a different one of the plurality of digital input signals generated by said digital input circuit.

1
Ck
er

--2. (Amended) A communication [The] system as set forth in claim 1 [above], wherein said system provides for communication of digital signals to the remote location; [wherein] said digital input circuit [includes a circuit for] generating the plurality of digital signals to be communicated to the remote location; and [wherein] said signature circuit [includes a circuit for] generating each of the plurality of signature signals in response to [each] one of the plurality of digital signals [generated by said digital digital] input circuit] by modulating the digital signals with a signature signal for communication to the remote location.

--3. (Amended) A communication [The] system as set forth in claim 1 [above], wherein said system provides for location of said transmitter; said system further comprising a location processor [for] coupled to the demultiplexing circuit and processing the digital output signals [generated by said demultiplexing circuit to determine] and determining the location of said transmitter.

--4. (Amended) A communication [The] system as set forth in claim 1 [above], wherein said system provides for location of said receiver; said system further comprising a location processor [for] coupled to the demultiplexing circuit and processing the digital output signals [generated by said demultiplexing circuit to determine] and determining the location of said receiver.

HI sub
--5. (Amended) A filter processor system comprising:
an analog input device [for] generating an analog input
signal;

an analog to digital converter [for] coupled to the analog input device and generating digital signal samples in response to the analog input signal [generated by said analog input device]; and

an integrated circuit stored program digital computer [for] coupled to the analog to digital converter and generating an output signal [under control of a stored program] in response to the digital signal samples, said integrated circuit stored program digital computer including

- a) an integrated circuit read only memory [for] storing a computer program,
- b) an integrated circuit input [logic for inputting] circuit coupled to the integrated circuit read only memory and to the analog to digital converter and generating input signal samples in response to the digital signal samples [generated by said analog to digital converter under control of] and in response to the computer program [stored in said integrated circuit read only memory],
- b) an integrated circuit random access memory [for] storing digital signal samples,
- c) an integrated circuit writing [logic for] circuit coupled to the integrated circuit read only memory, the integrated circuit input circuit, and the integrated circuit random access memory and writing the [digital] input signal samples [input by said integrated circuit input circuit] generated by the integrated circuit input logic to said integrated circuit random access memory in response to the computer program,

- Y
- Handwritten notes on the left margin:
 A large checkmark-like symbol.
 H,
 #
 end
- d) an integrated circuit accessing [logic for] circuit coupled to the integrated circuit random access memory and to the integrated circuit read only memory and accessing digital signal samples [from] stored by said integrated circuit random access memory [under control of] in response to the computer program [stored by said integrated circuit read only memory],
 - e) an integrated circuit processing [logic for] circuit coupled to the integrated circuit accessing circuit and to the integrated circuit read only memory and generating filter processed signal samples by filter processing the digital signal samples accessed [from said integrated circuit random access memory] by said accessing circuit [under control of] in response to the computer program [stored by said integrated circuit read only memory], and
 - c) an integrated circuit output [logic for] circuit coupled to the integrated circuit processing circuit and to the integrated circuit read only memory and generating an output signal in response to the [processing of the digital] filter processed signal samples [by said integrated circuit processing logic under control of] and in response to the computer program [stored by said integrated circuit read only memory].

--6. (Amended) A communication [The] system as set forth in claim 1 [above], wherein said signature circuit includes a plurality of signature generators each signature generator generating a signature signal having a signature different from the signatures [of] of the signature signals generated by the

other signature generators in response to the plurality of digital signals [generated by said digital digital input circuit].

--7. (Amended) A communication [The] system as set forth in claim 1 [above], [wherein] said multiplexing circuit [includes a circuit for] generating the multiplexed signature signal by combining the signature signals generated by said signature circuit with wired circuit connections.

--8. (Amended) A communication system comprising:
an antenna [for] receiving a signature signal;
an amplifier circuit [for] coupled to the antenna and generating an amplified signature signal by amplifying the signature signal received by said antenna;

a single bit digital sampling circuit [for] coupled to the amplifier circuit and generating single bit digital input signature signal samples by sampling the [input] amplified signature signal [amplified by said amplifier circuit];

an input memory [for] coupled to the single bit digital sampling circuit and storing the single bit digital input signature signal samples [generated by said single bit digital sampling circuit];

a plurality of single bit digital correlators, wherein each of said single bit digital correlators includes

a) a digital reference memory [for] storing digital reference signature signal samples having a signature that is different from the signatures of the digital reference signature samples stored by the digital reference [memories] memory in each of the other single bit digital correlators [,] and

b) a single bit correlator circuit [for] coupled to the input memory and to the digital reference memory and generating multiple bit digital correlated output signal samples by

correlation filtering of the single bit digital input signature signal samples stored by said input memory in response to the digital reference signature signal samples; [stored by said digital reference memory, and]

[c)] an output memory [for] coupled to the single bit correlator circuit and storing the multiple bit digital correlated output signal samples [generated by said correlator circuit];

an integrated circuit stored program computer [for] coupled to the output memory and generating an output signal [under control of a stored program] in response to the multiple bit digital correlated output signal samples, said integrated circuit stored program computer including

- a) an integrated circuit read only memory [for] storing a computer program,
- b) an integrated circuit processing [logic for] circuit coupled to the integrated circuit read only memory and to the output memory and generating processed correlated signal samples by processing the digital correlated output signal samples stored by said output memory [in each of said single bit digital correlators under control of] in response to the computer program [stored by said integrated circuit read only memory], and
- c) an integrated circuit output [logic for] circuit coupled to the integrated circuit read only memory and to the integrated processing circuit and generating an output display signal in response to the [processing of the digital] processed correlated [output] signal samples [by said integrated circuit

processing logic under control of] and in response to the computer program [stored by said integrated circuit read only memory];
and

an operator display [for] coupled to the integrated circuit output circuit and displaying information to an operator in response to the output display signal [generated by said computer output circuit].

1
C
S
--9. (Amended) A communication [The] system as set forth in claim 1 [above], wherein said transmitter includes a seismic transmitter [for] transmitting the multiplexed signature signal [generated by said multiplexing circuit] to the remote location as seismic signals.

--10. (Amended) A communication [The] system as set forth in claim 1 [above], wherein said transmitter includes an underwater acoustic transmitter [for] transmitting the multiplexed signature signal [generated by said multiplexing circuit] to the remote location as underwater acoustic signals.

--11. (Amended) A communication system [for receiving a plurality of input signature signals each transmitted from a different remote location and each input signature signal having a signature that is different from the signature of each of the other input signature signals, said communication system] comprising:

an antenna [for] receiving [the] a plurality of input signature signals, wherein each of the plurality of input signature signals are transmitted from a different remote location, and wherein each of the input signature signals has [having] a signature that is different from the signature of each of the other input signature signals transmitted from the different remote locations;

an amplifier circuit [for] coupled to the antenna and generating an amplified signal by amplifying the plurality of input signature signals [received by said antenna];

a digital sampling circuit [for] coupled to the amplifier circuit and generating digital input signature signal samples by sampling the [signature signals] amplified signal [by said amplifier circuit];

an input memory [for] coupled to the digital sampling circuit and storing the digital input signature signal samples [generated by said digital sampling circuit];

a plurality of digital correlators, wherein each of said digital correlators includes

a) a digital reference memory [for] storing digital reference signature signal samples having a signature that is different from the signatures of the digital reference signature samples stored by the digital reference memories in each of the other digital correlators [,] and

b) a correlator circuit [for] coupled to the digital reference memory and to the input memory and generating digital correlated output signal samples by correlation filtering [of] the digital input signature signal samples [stored by said input memory] in response to the digital reference signature signal samples; [stored by said digital reference memory, and]

[c)] an output memory [for] coupled to the correlator circuit in each of the plurality of digital correlators and storing the digital correlated output signal samples [generated by said correlator circuit];

an integrated circuit stored program computer [for] coupled to the output memory and generating an output signal [under control of a stored program] in response to the digital

correlated output signal samples, said integrated circuit stored program computer including

- a) an integrated circuit read only memory [for] storing a computer program,
- b) an integrated circuit processing [logic for] circuit coupled to the integrated circuit read only memory and to the output memory and generating processed correlated output signal samples by processing the digital correlated output signal samples stored by said output memory [in each of said digital correlators under control of] in response to the computer program [stored by said integrated circuit read only memory], and
- c) an integrated circuit output [logic for] circuit coupled to the integrated circuit processing circuit and to the integrated circuit read only memory and generating an output display signal in response to the [processing of the digital correlated] processed output signal samples [by said integrated circuit processing logic under control of] and in response to the computer program [stored by said integrated circuit read only memory]; and

an operator display [for] coupled to the integrated circuit output circuit and displaying information [to an operator] in response to the output display signal [generated by said computer output circuit].

- 12. (Amended) A communication system comprising:
- an antenna [for] receiving [a] an input signature signal;
 - an amplifier circuit [for amplifying the] coupled to the antenna and generating an amplified signature signal

[received by said antenna] in response to the input signature signal;

a [single bit digital] sampling circuit [for] coupled to the amplifier circuit and generating [single bit digital] input signature signal samples by sampling the [input] amplified signature signal [amplified by said amplifier circuit];

an input memory [for] coupled to the sampling circuit and storing the [single bit digital] input signature signal samples [generated by said single bit digital sampling circuit];
[and]

a plurality of [single bit digital] correlators, wherein each of said [single bit digital] correlators includes

- a) a [single bit digital] reference memory [for] storing [single bit digital] reference signature signal samples having a signature that is different from the signatures of the [single bit digital] reference signature samples stored by the [single bit digital] reference [memories] memory in each of the other [single bit digital] correlators [,]

and

- b) a [single bit digital] correlator circuit [for] coupled to the reference memory and to the input memory and generating [multiple bit digital] correlated output signal samples by correlation filtering [of] the [single bit digital] input signature signal samples [stored by said input memory] in response to the [single bit digital] reference signature signal samples; [stored by said single bit digital reference memory,] and

[c)] an output memory [for] coupled to the plurality of correlators and storing the [multiple bit digital] correlated output signal samples [generated by said single bit digital correlator circuit].

--13. (Amended) A communication system comprising:

a plurality of signature sources, each [for] of the plurality of signature sources transmitting a signature signal to a receiver that is located at a remote location, wherein each of said signature sources includes

a) a signature generator [for] generating a signature signal having a signature that is different from the signature of [each of] the other signature signals generated by [the each of] the other signature generators included in each of the [other] plurality of signature sources and

b) a transmitter [for] coupled to the signature generator and transmitting the signature signal [generated by the signature generator] to a receiver that is located at a remote location;

a receiver located at the remote location [for] receiving the signature signals transmitted by the [transmitters] transmitter included in each of said plurality of signature sources; and

a [demultiplexor for] demultiplexer coupled to the receiver and generating a plurality of output signals each output signal corresponding to a different one of the signature signals generated by said plurality of signature sources.

--14. (Amended) A communication [The] system as set forth in claim 13 [above], wherein said system provides for communication of signature signals to the remote location.

--15. (Amended) A communication [The] system as set forth in claim 13 [above], wherein said system provides for location of said plurality of [transmitters] signature sources; said system further comprising a location processor [for] coupled to the demultiplexer, processing the plurality of output signals [generated by said demultiplexor to determine] and determining

the location of a least one of said [transmitters] signature sources.

3
C
x
--16. (Amended) A communication [The] system as set forth in claim 13 [above], wherein said system provides for location of said receiver; said system further comprising a location processor [for] coupled to the demultiplexer and processing the plurality of output signals [generated by said demultiplexer] to determine the location of said receiver.

--17. (Amended) A communication [The] system as set forth in claim 13 [above], wherein the transmitter included in each of said plurality of [transmitters] signature sources includes a radio transmitter [for] coupled to the signature generator and transmitting the signature signal [generated by the signature generator to which it is connected] to the remote location as a radio signal.

--18. (Amended) A communication [The] system as set forth in claim 13 [above], wherein the transmitter included in each of said plurality of [transmitters] signature sources includes a seismic transmitter [for] coupled to the signature generator and transmitting the signature signal [generated by the signature generator to which it is connected] to the remote location as a seismic signal.

--19. (Amended) A communication [The] system as set forth in claim 13 [above], wherein the transmitter included in each of said plurality of [transmitters] signature sources includes an acoustic transmitter [for] coupled to the signature generator and transmitting the signature signal [generated by the signature generator to which it is connected] to the remote location as an acoustic signal.

--20. (Amended) A communication system [for receiving a plurality of input signature signals each transmitted from a different remote location and each input signature signal having a signature that is different from the signature of each of the other input signature signals, said communication system] comprising:

3 x
Cf
an antenna [for] receiving [the] a plurality of input signature signals, wherein each input signature signal is transmitted from a different remote location, and wherein each signature signal [having] has a signature that is different from the signature of each of the other input signature signals [transmitted from the different remote locations];

an amplifier circuit [for] coupled to the antenna and amplifying the plurality of input signature signals [received by said antenna];

a digital sampling circuit [for] coupled to the amplifier circuit and generating digital input signature signal samples by sampling the plurality of input signature signals amplified by said amplifier circuit;

an input memory [for] coupled to the digital sampling circuit and storing the digital input signature signal samples [generated by said digital sampling circuit];

a plurality of digital correlators, wherein each of said digital correlators includes

a) a digital reference memory [for] storing digital reference signature signal samples having a signature that is different from the signatures of the digital reference signature samples stored by the digital reference memories in each of the other digital correlators [,] and

b) a correlator circuit [for] coupled to the digital reference memory and to the input memory and generating digital correlated output signal samples by correlation filtering of the digital input signature

signal samples stored by said input memory in response to the digital reference signature signal samples; [stored by said digital reference memory, and]

[c)] an output memory [for] coupled to the correlator circuit and storing the digital correlated output signal samples [generated by said correlator circuit];

an integrated circuit stored program computer [for] coupled to the output memory and generating an output signal [under control of a stored program] in response to the digital correlated output signal samples stored by the output memory, said integrated circuit stored program computer including

- a) an integrated circuit read only memory [for] storing a computer program,
- b) an integrated circuit processing circuit [for processing] coupled to the output memory and to the integrated circuit read only memory and generating processed output signal samples in response to the digital correlated output signal samples stored by said output memory [in each of said digital correlators under control of] and in response to the computer program [stored by said integrated circuit read only memory], and
- c) an integrated circuit output circuit [for] coupled to the integrated circuit processing circuit and generating an output display signal in response to the [processing of the digital correlated] output signal samples [by said integrated circuit processing circuit under control of] in response to the computer program [stored by said integrated circuit read only memory]; and

an operator display [for] coupled to the integrated circuit output circuit and displaying information [to an operator] in response to the output display signal [generated by said computer output circuit].

--21. (Amended) A communication system comprising:

3
C
X
J
a digital processor [for] generating a plurality of digital signals;

a signature generator [for] coupled to the digital processor and generating a signature signal in response to each of the plurality of digital signals [generated by said digital processor], where each [of the] signature [signals] signal has a signature that is different from the signature of each of the other signature signals;

a [multiplexor for] multiplexer coupled to the signature generator and generating a multiplexed signature signal by combining the signature signals generated by said signature generator;

a transmitter [for] coupled to the multiplexer and transmitting the multiplexed signature signal [generated by said multiplexor] to a remote location;

a receiver located at the remote location [for] and receiving the multiplexed signature signal transmitted by said transmitter; and

a [demultiplexor for] demultiplexer located at the remote location, coupled to the receiver, and generating a plurality of digital signals, each of the plurality of digital signals corresponding to a different one of the plurality of digital signals [generated by said digital processor].

--22. (Amended) A communication [The] system as set forth in claim 21 [above], wherein said system provides for communication of the plurality of digital signals to [the] a remote location; wherein said system further comprises a digital [processor includes a] location processor [for] coupled to the demultiplexer and generating [the] a plurality of [digital]

location signals [to be communicated to the remote location; and wherein said signature generator includes a signature circuit for generating the signature signal in response to each of the plurality of digital signals generated by said digital processor by modulating the digital signals with a signature signal for communication to the remote location].

3
C
J
--23. (Amended) A communication [The] system as set forth in claim 21 [above], wherein said system provides for location of said transmitter; said system further comprising an output processor [for] coupled to the demultiplexer and processing the plurality of digital signals [generated by said demultiplexor] to determine the location of said transmitter.

--24. (Amended) A communication [The] system as set forth in claim 21 [above], wherein said system provides for location of said receiver; said system further comprising a location processor [for] coupled to the demultiplexer and processing the plurality of digital signals [generated by said demultiplexor] to determine the location of said receiver.

--25. (Amended) A communication [The] system as set forth in claim 21 [above], wherein said [digital processor includes] system further comprises a stored program digital computer [for] coupled to the demultiplexer and generating [the] a plurality of [digital] output signals in response to [processing of] the digital [information] signals.

--26. (Amended) A communication [The] system as set forth in claim 21 [above], wherein said signature generator includes a plurality of signature generators each generating a signature different from the signatures of the other signature generators in response to the plurality of digital signals [generated by said digital processor].

--27. (Amended) A communication [The] system as set forth in claim 21 [above], wherein said [multiplexor] multiplexer includes [means for] a combining circuit coupled to the receiver and generating the multiplexed signature signal by combining the signature signals generated by said signature generator with wired circuit connections.

2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000
1001
1002
1003
1004
1005
1006
1007
1008
1009
1010
1011
1012
1013
1014
1015
1016
1017
1018
1019
1020
1021
1022
1023
1024
1025
1026
1027
1028
1029
1030
1031
1032
1033
1034
1035
1036
1037
1038
1039
1040
1041
1042
1043
1044
1045
1046
1047
1048
1049
1050
1051
1052
1053
1054
1055
1056
1057
1058
1059
1060
1061
1062
1063
1064
1065
1066
1067
1068
1069
1070
1071
1072
1073
1074
1075
1076
1077
1078
1079
1080
1081
1082
1083
1084
1085
1086
1087
1088
1089
1090
1091
1092
1093
1094
1095
1096
1097
1098
1099
1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1120
1121
1122
1123
1124
1125
1126
1127
1128
1129
1130
1131
1132
1133
1134
1135
1136
1137
1138
1139
1140
1141
1142
1143
1144
1145
1146
1147
1148
1149
1150
1151
1152
1153
1154
1155
1156
1157
1158
1159
1160
1161
1162
1163
1164
1165
1166
1167
1168
1169
1170
1171
1172
1173
1174
1175
1176
1177
1178
1179
1180
1181
1182
1183
1184
1185
1186
1187
1188
1189
1190
1191
1192
1193
1194
1195
1196
1197
1198
1199
1200
1201
1202
1203
1204
1205
1206
1207
1208
1209
1210
1211
1212
1213
1214
1215
1216
1217
1218
1219
1220
1221
1222
1223
1224
1225
1226
1227
1228
1229
1230
1231
1232
1233
1234
1235
1236
1237
1238
1239
1240
1241
1242
1243
1244
1245
1246
1247
1248
1249
1250
1251
1252
1253
1254
1255
1256
1257
1258
1259
1260
1261
1262
1263
1264
1265
1266
1267
1268
1269
1270
1271
1272
1273
1274
1275
1276
1277
1278
1279
1280
1281
1282
1283
1284
1285
1286
1287
1288
1289
1290
1291
1292
1293
1294
1295
1296
1297
1298
1299
1300
1301
1302
1303
1304
1305
1306
1307
1308
1309
1310
1311
1312
1313
1314
1315
1316
1317
1318
1319
1320
1321
1322
1323
1324
1325
1326
1327
1328
1329
1330
1331
1332
1333
1334
1335
1336
1337
1338
1339
1340
1341
1342
1343
1344
1345
1346
1347
1348
1349
1350
1351
1352
1353
1354
1355
1356
1357
1358
1359
1360
1361
1362
1363
1364
1365
1366
1367
1368
1369
1370
1371
1372
1373
1374
1375
1376
1377
1378
1379
1380
1381
1382
1383
1384
1385
1386
1387
1388
1389
1390
1391
1392
1393
1394
1395
1396
1397
1398
1399
1400
1401
1402
1403
1404
1405
1406
1407
1408
1409
1410
1411
1412
1413
1414
1415
1416
1417
1418
1419
1420
1421
1422
1423
1424
1425
1426
1427
1428
1429
1430
1431
1432
1433
1434
1435
1436
1437
1438
1439
1440
1441
1442
1443
1444
1445
1446
1447
1448
1449
1450
1451
1452
1453
1454
1455
1456
1457
1458
1459
1460
1461
1462
1463
1464
1465
1466
1467
1468
1469
1470
1471
1472
1473
1474
1475
1476
1477
1478
1479
1480
1481
1482
1483
1484
1485
1486
1487
1488
1489
1490
1491
1492
1493
1494
1495
1496
1497
1498
1499
1500
1501
1502
1503
1504
1505
1506
1507
1508
1509
1510
1511
1512
1513
1514
1515
1516
1517
1518
1519
1520
1521
1522
1523
1524
1525
1526
1527
1528
1529
1530
1531
1532
1533
1534
1535
1536
1537
1538
1539
1540
1541
1542
1543
1544
1545
1546
1547
1548
1549
1550
1551
1552
1553
1554
1555
1556
1557
1558
1559
1560
1561
1562
1563
1564
1565
1566
1567
1568
1569
1570
1571
1572
1573
1574
1575
1576
1577
1578
1579
1580
1581
1582
1583
1584
1585
1586
1587
1588
1589
1590
1591
1592
1593
1594
1595
1596
1597
1598
1599
1600
1601
1602
1603
1604
1605
1606
1607
1608
1609
1610
1611
1612
1613
1614
1615
1616
1617
1618
1619
1620
1621
1622
1623
1624
1625
1626
1627
1628
1629
1630
1631
1632
1633
1634
1635
1636
1637
1638
1639
1640
1641
1642
1643
1644
1645
1646
1647
1648
1649
1650
1651
1652
1653
1654
1655
1656
1657
1658
1659
1660
1661
1662
1663
1664
1665
1666
1667
1668
1669
1670
1671
1672
1673
1674
1675
1676
1677
1678
1679
1680
1681
1682
1683
1684
1685
1686
1687
1688
1689
1690
1691
1692
1693
1694
1695
1696
1697
1698
1699
1700
1701
1702
1703
1704
1705
1706
1707
1708
1709
1710
1711
1712
1713
1714
1715
1716
1717
1718
1719
1720
1721
1722
1723
1724
1725
1726
1727
1728
1729
1730
1731
1732
1733
1734
1735
1736
1737
1738
1739
1740
1741
1742
1743
1744
1745
1746
1747
1748
1749
1750
1751
1752
1753
1754
1755
1756
1757
1758
1759
1760
1761
1762
1763
1764
1765
1766
1767
1768
1769
1770
1771
1772
1773
1774
1775
1776
1777
1778
1779
1780
1781
1782
1783
1784
1785
1786
1787
1788
1789
1790
1791
1792
1793
1794
1795
1796
1797
1798
1799
1800
1801
1802
1803
1804
1805
1806
1807
1808
1809
1810
1811
1812
1813
1814
1815
1816
1817
1818
1819
1820
1821
1822
1823
1824
1825
1826
1827
1828
1829
1830
1831
1832
1833
1834
1835
1836
1837
1838
1839
1840
1841
1842
1843
1844
1845
1846
1847
1848
1849
1850
1851
1852
1853
1854
1855
1856
1857
1858
1859
1860
1861
1862
1863
1864
1865
1866
1867
1868
1869
1870
1871
1872
1873
1874
1875
1876
1877
1878
1879
1880
1881
1882
1883
1884
1885
1886
1887
1888
1889
1890
1891
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
2046
2047
2048
2049
2050
2051
2052
2053
2054
2055
2056
2057
2058
2059
2060
2061
2062
2063
2064
2065
2066
2067
2068
2069
2070
2071
2072
2073
2074
2075
2076
2077
2078
2079
2080
2081
2082
2083
2084
2085
2086
2087
2088
2089
2090
2091
2092
2093
2094
2095
2096
2097
2098
2099
2100
2101
2102
2103
2104
2105
2106
2107
2108
2109
2110
2111
2112
2113
2114
2115
2116
2117
2118
2119
2120
2121
2122
2123
2124
2125
2126
2127
2128
2129
2130
2131
2132
2133
2134
2135
2136
2137
2138
2139
2140
2141
2142
2143
2144
2145
2146
2147
2148
2149
2150
2151
2152
2153
2154
2155
2156
2157
2158
2159
2160
2161
2162
2163
2164
2165
2166
2167
2168
2169
2170
2171
2172
2173
2174
2175
2176
2177
2178
2179
2180
2181
2182
2183
2184
2185
2186
2187
2188
2189
2190
2191
2192
2193
2194
2195
2196
2197
2198
2199
2200
2201
2202
2203
2204
2205
2206
2207
2208
2209
2210
2211
2212
2213
2214
2215
2216
2217
2218

- 32. (Amended) A communication system comprising:
- an antenna [for] receiving [a] an input signature signal;
 - an amplifier circuit [for amplifying] coupled to the antenna and generating an amplified signature signal in response to the input signature signal [received by said antenna];
 - a digital sampling circuit [for] coupled to the amplifier and generating digital input signature signal samples by sampling the [input] amplified signature signal [amplified by said amplifier circuit];
 - an input memory [for] coupled to the digital sampling circuit and storing the digital input signature signal samples [generated by said digital sampling circuit];
 - a plurality of digital correlators, wherein each of said digital correlators includes
 - a) a digital reference memory [for] storing digital reference signature signal samples having a signature that is different from the signatures of the digital reference signature samples stored by the digital reference memories in each of the other digital correlators [,] and
 - b) a digital correlator circuit [for] coupled to the input memory and to the digital reference memory and generating digital correlated output signal samples by correlation filtering [of] the digital input signature signal samples stored by said input memory in response to the digital reference signature signal samples [stored by said digital reference memory], said digital correlator circuit including a multiplier circuit [for] generating product signal samples by multiplying the input signature signal samples stored by said input memory with digital reference signature signal samples

[stored by said digital reference memory] and
an adder circuit [for] generating [each of]
the digital correlated output signal samples
by adding together product signal samples;
[generated by said multiplier circuit, and]

[c)] an output memory [for] coupled to the digital correlator circuit in each of the plurality of digital correlators and storing the digital correlated output signal samples [generated by said digital correlator/circuit];

an integrated circuit stored program computer [for]
generating an output signal [under control of a stored program]
in response to the digital correlated output signal samples, said
integrated circuit stored program computer including

- a) an integrated circuit read only memory [for] storing a computer program,
- b) an integrated circuit processing [logic for processing] circuit coupled to the output memory and to the integrated circuit read only memory and generating processed output signal signals in response to the digital correlated output signal samples stored by said output memory [in each of said digital correlators under control of] and in response to the computer program [stored by said integrated circuit read only memory], and
- c) an integrated circuit output [logic for] circuit coupled to the integrated circuit processing circuit and generating an output display signal in response to the [processing of the digital correlated] processed output signal samples [by said integrated circuit processing logic under control of] and in response to the computer program [stored by said integrated circuit read only memory]; and

an operator display [for] coupled to the integrated circuit output circuit and displaying information [to an operator] in response to the output display signal [generated by said computer output circuit].

--33. (Amended) A communication system comprising:

a plurality of signature generators each [for] generating a signature signal, where each of the signature signals has a signature that is different from the signature of each of the other signature signals and where the signature signals generated by said plurality of signature generators overlap therebetween;

a plurality of transmitters each [connected] coupled to a different one of said plurality of signature generators [for] and transmitting the signature signal generated by the signature generator to which it is [connected] coupled to a remote location;

a receiver located at the remote location [for] and receiving the overlapping signature signals transmitted by said plurality of transmitters; and

a [demultiplexor for] demultiplexer generating a plurality of output signals each corresponding to a different one of the plurality of overlapping signature signals generated by said plurality of signature generators.

--34. (Amended) A communication [The] system as set forth in claim 33 [above], wherein said system provides for communication of signature signals to the remote location.

--35. (Amended) A communication [The] system as set forth in claim 33 [above], wherein said system provides for location of said plurality of transmitters; said system further comprising a processor [for] coupled to the demultiplexer and processing the plurality of output signals [generated by said demultiplexer] to determine the location of a least one of said transmitters.

--36. (Amended) A communication [The] system as set forth in claim 33 [above], wherein said system provides for location of said receiver; said system further comprising a processor [for] coupled to the demultiplexer and processing the plurality of output signals [generated by said demultiplexor] to determine the location of said [receiver] receiver.

bn
Cf
--37. (Amended) A communication [The] system as set forth in claim 33 [above], wherein each of said plurality of transmitters includes a radio transmitter [for] transmitting the signature signal generated by the signature generator to which it is [connected] coupled to the remote location as a radio signal.

--38. (Amended) A communication [The] system as set forth in claim 33 [above], wherein each of said plurality of transmitters includes a seismic transmitter [for] transmitting the signature signal generated by the signature generator to which it is [connected] coupled to the remote location as a seismic signal.

--39. (Amended) A communication [The] system as set forth in claim 33 [above], wherein each of said plurality of transmitters includes an acoustic transmitter [for] transmitting the signature signal generated by the signature generator to which it is [connected] coupled to the remote location as an acoustic signal.

--40. (Amended) A communication [The] system as set forth in claim 33 [above], wherein said [demultiplexor] demultiplexer includes a plurality of digital correlators each [for] digital correlator generating a different one of the plurality of output signals and each digital correlator corresponding to a different one of the plurality of signature signals generated by said plurality of signature generators.

[Add new claims 41-58 as follows.]

--41. A filter processor system comprising:

an analog input device generating an analog input signal;

an analog to digital converter coupled to the analog input device and generating digital signal samples in response to the analog input signal; and

a single integrated circuit chip stored program digital computer coupled to the analog to digital converter and generating digital output signal samples in response to the digital signal samples, wherein the single integrated circuit chip stored program digital computer is implemented on a single integrated circuit chip, and wherein the single integrated circuit chip stored program digital computer includes

- a) an integrated circuit read only memory storing a computer program, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip,
- b) an integrated circuit input circuit coupled to the integrated circuit read only memory and to the analog to digital converter and generating input signal samples in response to the digital signal samples and in response to the computer program, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip,
- c) an integrated circuit random access memory storing computer signal samples, wherein the integrated circuit random access memory is implemented on the single integrated circuit chip,
- d) an integrated circuit writing circuit coupled to the integrated circuit read only memory,

the integrated circuit input circuit, and the integrated circuit random access memory and writing the computer signal samples to the integrated circuit random access memory in response to the input signal samples and in response to the computer program, wherein the integrated circuit writing circuit is implemented on the single integrated circuit chip,

- e) an integrated circuit accessing circuit coupled to the integrated circuit random access memory and to the integrated circuit read only memory and accessing computer signal samples stored by the integrated circuit random access memory in response to the computer program, wherein the integrated circuit accessing circuit is implemented on the single integrated circuit chip,
- f) an integrated circuit processing circuit coupled to the integrated circuit accessing circuit and to the integrated circuit read only memory and generating filter processed signal samples by filter processing the computer signal samples accessed by the integrated circuit accessing circuit in response to the computer program, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip, and
- g) an integrated circuit output circuit coupled to the integrated circuit processing circuit and to the integrated circuit read only memory and generating the digital output signal samples in response to the filter processed signal samples and in response to the computer program, wherein the integrated

circuit output circuit is implemented on the single integrated circuit chip.

--42. A filter processor system as set forth in claim 41, further comprising:

a sound circuit coupled to the integrated circuit output circuit and generating an electrical sound signal in response to the digital output signal samples and

a sound transducer coupled to the sound circuit and generating an acoustic sound in response to the electrical sound signal.

--43. A filter processor system as set forth in claim 41, further comprising:

a display circuit coupled to the integrated circuit output circuit and generating a display signal in response to the digital output signal samples and

a display monitor coupled to the display circuit and generating a display in response to the display signal.

--44. A filter processor system as set forth in claim 41, further comprising a digital to analog converter circuit coupled to the integrated circuit output circuit and generating an analog output signal in response to the digital output signal samples.

--45. A filter processor system as set forth in claim 41, wherein the integrated circuit output circuit is an integrated circuit serial output circuit generating the digital output signal samples as serial digital output signal samples in response to the in response to the filter processed signal samples and in response to the computer program.

--46. A filter processor system as set forth in claim 41, wherein the analog to digital converter generates the digital signal samples as serial digital signal samples and wherein the integrated circuit input circuit is an integrated circuit serial

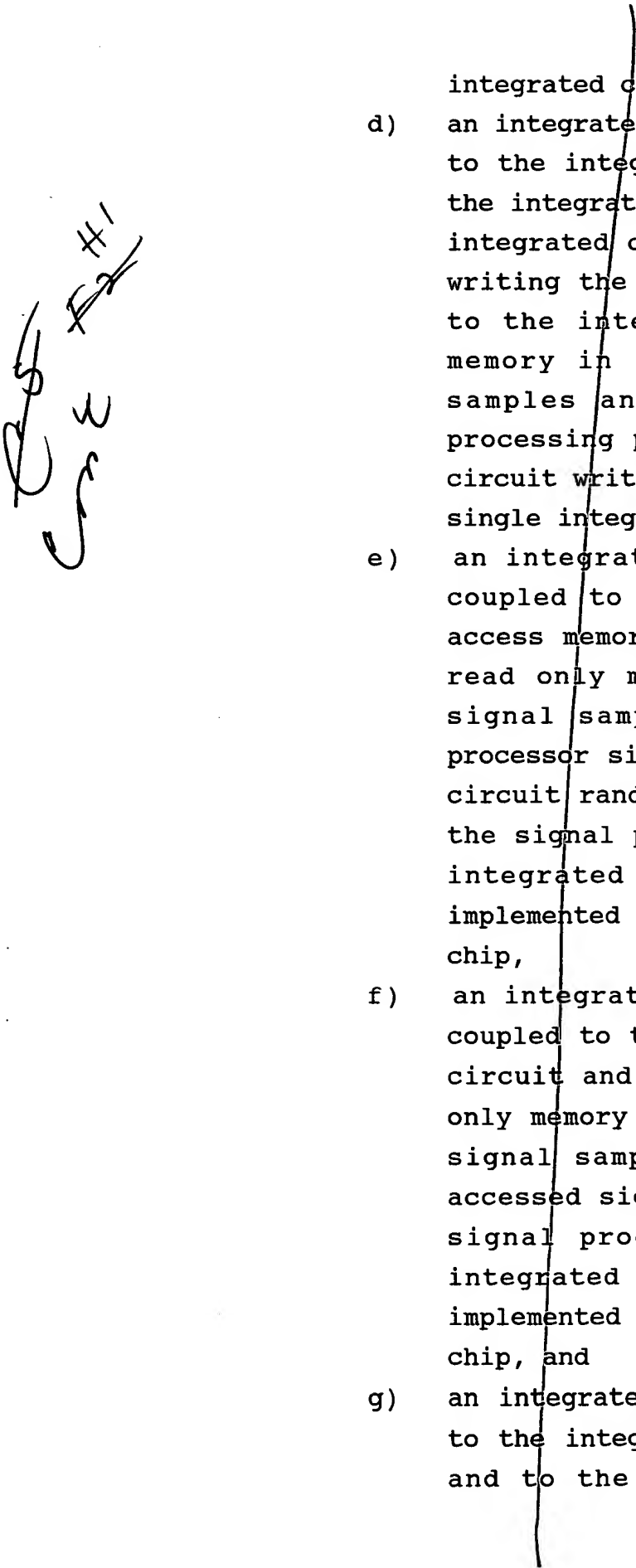
input circuit coupled to the integrated circuit read only memory and to the analog to digital converter and generating the input signal samples in response to the serial digital signal samples and in response to the computer program.

--47. A receiver system comprising:

an antenna generating an antenna signal;
an amplifier coupled to the antenna and generating an amplified signal in response to the antenna signal;
a sampling circuit coupled to the amplifier and generating received signal samples in response to the amplified signal; and

a single integrated circuit chip signal processor coupled to the amplifier and generating output signal samples in response to the received signal samples, wherein the single integrated circuit chip signal processor is implemented on a single integrated circuit chip, and wherein the single integrated circuit chip signal processor includes

- a) an integrated circuit read only memory storing a signal processing program, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip,
- b) an integrated circuit input circuit coupled to the integrated circuit read only memory and to the sampling circuit and generating input signal samples in response to the received signal samples and in response to the signal processing program, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip,
- c) an integrated circuit random access memory storing signal processor signal samples, wherein the integrated circuit random access memory is implemented on the single

- 
- integrated circuit chip,
- d) an integrated circuit writing circuit coupled to the integrated circuit read only memory, the integrated circuit input circuit, and the integrated circuit random access memory and writing the signal processor signal samples to the integrated circuit random access memory in response to the input signal samples and in response to the signal processing program, wherein the integrated circuit writing circuit is implemented on the single integrated circuit chip,
- e) an integrated circuit accessing circuit coupled to the integrated circuit random access memory and to the integrated circuit read only memory and generating accessed signal samples by accessing the signal processor signal samples from the integrated circuit random access memory in response to the signal processing program, wherein the integrated circuit accessing circuit is implemented on the single integrated circuit chip,
- f) an integrated circuit processing circuit coupled to the integrated circuit accessing circuit and to the integrated circuit read only memory and generating filter processed signal samples by filter processing the accessed signal samples in response to the signal processing program, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip, and
- g) an integrated circuit output circuit coupled to the integrated circuit processing circuit and to the integrated circuit read only

memory and generating the output signal samples in response to the filter processed signal samples and in response to the signal processing program, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip.

--48. A receiver system as set forth in claim 47, further comprising:

a sound circuit coupled to the integrated circuit output circuit and generating an electrical sound signal in response to the output signal samples and

a sound transducer coupled to the sound circuit and generating an acoustic sound in response to the electrical sound signal.

--49. A receiver system as set forth in claim 47, further comprising:

a display circuit coupled to the integrated circuit output circuit and generating a display signal in response to the output signal samples and

a display monitor coupled to the display circuit and generating a display in response to the display signal.

--50. A filter processor system as set forth in claim 47, further comprising a digital to analog converter circuit coupled to the integrated circuit output circuit and generating an analog output signal in response to the output signal samples.

--51. A receiver system as set forth in claim 47, wherein the integrated circuit output circuit is an integrated circuit serial output circuit generating the output signal samples as serial digital output signal samples in response to the filter processed signal samples and in response to the signal processing program.

41
5
4
CNC

--52. A receiver system as set forth in claim 47, wherein the sampling circuit generates the received signal samples as serial digital received signal samples and wherein the integrated circuit input circuit is an integrated circuit serial input circuit coupled to the integrated circuit read only memory and to the sampling circuit and generating the input signal samples in response to the serial digital received signal samples and in response to the signal processing program.

--53. A digital signal processor comprising:

a single integrated circuit chip having a digital signal processor implemented thereon;

an integrated circuit read only memory storing a signal processor program, wherein the integrated circuit read only memory is implemented on the single integrated circuit chip;

an integrated circuit input circuit coupled to the integrated circuit read only memory and generating input signal samples in response to the signal processor program, wherein the integrated circuit input circuit is implemented on the single integrated circuit chip;

an integrated circuit random access memory storing signal processor signal samples, wherein the integrated circuit random access memory is implemented on the single integrated circuit chip;

an integrated circuit writing circuit coupled to the integrated circuit read only memory, the integrated circuit input circuit, and the integrated circuit random access memory and writing the signal processor signal samples to the integrated circuit random access memory in response to the input signal samples and in response to the signal processor program, wherein the integrated circuit writing circuit is implemented on the single integrated circuit chip;

an integrated circuit accessing circuit coupled to the integrated circuit random access memory and to the integrated circuit read only memory and accessing signal processor signal samples stored by the integrated circuit random access memory in

response to the signal processor program, wherein the integrated circuit accessing circuit is implemented on the single integrated circuit chip;

an integrated circuit signal processing circuit coupled to the integrated circuit accessing circuit and to the integrated circuit read only memory and generating signal processed signal samples by signal processing the signal processor signal samples accessed by the integrated circuit accessing circuit in response to the signal processor program, wherein the integrated circuit processing circuit is implemented on the single integrated circuit chip; and

an integrated circuit output circuit coupled to the integrated circuit signal processing circuit and to the integrated circuit read only memory and generating the digital output signal samples in response to the signal processed signal samples and in response to the signal processor program, wherein the integrated circuit output circuit is implemented on the single integrated circuit chip.

--54. A digital signal processor as set forth in claim 53, further comprising:

a sound circuit coupled to the integrated circuit output circuit and generating an electrical sound signal in response to the output signal samples and

a sound transducer coupled to the sound circuit and generating an acoustic sound in response to the electrical sound signal.

--55. A digital signal processor as set forth in claim 53, further comprising:

a display circuit coupled to the integrated circuit output circuit and generating a display signal in response to the digital output signal samples and

a display monitor coupled to the display circuit and generating a display in response to the display signal.

Int 41
CS 75
--56. A digital signal processor as set forth in claim 53, further comprising a digital to analog converter circuit coupled to the integrated circuit output circuit and generating an analog output signal in response to the digital output signal samples.

CS 75
Int 41
--57. A digital signal processor as set forth in claim 53, wherein the integrated circuit output circuit is an integrated circuit serial output circuit generating the digital output signal samples as serial digital output signal samples in response to the filter processed signal samples and in response to the signal processing program.

--58. A digital signal processor as set forth in claim 53, wherein the integrated circuit input circuit is an integrated circuit serial input circuit coupled to the integrated circuit read only memory and generating the input signal samples as serial input signal samples and in response to the signal processing program.

2.1 AMENDMENTS TO THE CLAIMS

Cancel pages 1B to 1D as amended and substitute in place thereof the following.

--CROSS REFERENCE TO RELATED APPLICATIONS

cb cont

This application is a continuation in part of copending ancestor application FOURIER TRANSFORM PROCESSOR S/N 425,731 filed on September 28, 1982 and now U.S. Patent No. 4,581,715 issued on April 8, 1986 which is a continuation in part of each application in the following chain of ancestor patent applications having copendency therebetween:

(A) MEMORY SYSTEM USING FILTERABLE SIGNALS S/N 160,872 filed on June 19, 1980 by Gilbert P. Hyatt and now U.S. Patent No. 4,491,930 issued on January 1, 1985 and

(B) COMPUTER SYSTEM ARCHITECTURE S/N 860,257 filed December 14, 1977 by Gilbert P. Hyatt and now U.S. Patent No. 4,371,923 issued on February 1, 1983;

wherein said ancestor application S/N 160,872 is a continuation in part of each application in the following chain of ancestor patent applications having copendency therebetween:

(1) FACTORED DATA PROCESSING SYSTEM FOR DEDICATED APPLICATIONS S/N 101,881 filed on December 28, 1970 by Gilbert P. Hyatt; proceedings therein having been terminated;

(2) CONTROL SYSTEM AND METHOD S/N 134,958 filed on April 19, 1971 by Gilbert P. Hyatt; still pending in the PTO;

(3) CONTROL APPARATUS S/N 135,040 filed on April 19, 1971 by Gilbert P. Hyatt; still pending in the PTO;

(4) APPARATUS AND METHOD FOR PRODUCING HIGH REGISTRATION PHOTO-MASKS S/N 229,213 filed on April 13, 1972 by Gilbert P. Hyatt; now U.S. Patent No. 3,820,894 issued on June 28, 1974;

(5) MACHINE CONTROL SYSTEM OPERATING FROM REMOTE COMMANDS S/N 230,872 filed on March 1, 1972 by Gilbert P. Hyatt; now U.S. Patent No. 4,531,182 issued on July 23, 1985;

(6) COORDINATE ROTATION FOR MACHINE CONTROL SYSTEM S/N 232,459 filed on March 7, 1972 by Gilbert P. Hyatt; now U.S. Patent No. 4,370,720 issued on January 25, 1983;

(7) DIGITAL FEEDBACK CONTROL SYSTEM S/N 246,867 filed on April 24, 1972 and now U.S. Patent No. 4,310,878 by Gilbert P. Hyatt; issued on January 12, 1982;

(8) COMPUTERIZED SYSTEM FOR OPERATOR INTERACTION S/N 288,247 filed on Sept 11, 1972 by Gilbert P. Hyatt; now U.S. patent No. 4,121,284 issued on October 17, 1978;

(9) A SYSTEM FOR INTERFACING A COMPUTER TO A MACHINE S/N 291,394 filed on September 22, 1972 by Gilbert P. Hyatt; now U.S. Patent No. 4,396,976 issued on August 2, 1983;

(10) DIGITAL ARRANGEMENT FOR PROCESSING SQUAREWAVE SIGNALS S/N 302,771 filed on Nov 1, 1972 by Gilbert P. Hyatt; still pending in the PTO;

(11) APPARATUS AND METHOD FOR PROVIDING INTERACTIVE AUDIO COMMUNICATION S/N 325,933 filed on January 22, 1973 by Gilbert P. Hyatt; now U.S. Patent No. 4,016,540 issued on April 5, 1977;

(12) ELECTRONIC CALCULATOR SYSTEM HAVING AUDIO MESSAGES FOR OPERATOR INTERACTION S/N 325,941 filed on January 22, 1973 by Gilbert P. Hyatt; now U.S. Patent No. 4,060,848 issued on November 29, 1977;

(13) ILLUMINATION CONTROL SYSTEM S/N 366,714 filed on June 4, 1973 by Gilbert P. Hyatt; now U.S. Patent No. 3,986,922 issued on October 12, 1976;

(14) DIGITAL SIGNAL PROCESSOR FOR SERVO VELOCITY CONTROL S/N 339,817 filed on March 9, 1973 by Gilbert P. Hyatt; now U.S. Patent No. 4,034,276 issued on July 5, 1977;

(15) MONOLITHIC DATA PROCESSOR WITH MEMORY REFRESH S/N 402,520 filed on October 1, 1973 by Gilbert P. Hyatt; now U.S. Patent No. 4,825,364 issued on April 25, 1989;

(16) HOLOGRAPHIC SYSTEM FOR OBJECT LOCATION AND IDENTIFICATION S/N 490,816 filed on July 22, 1974 by Gilbert P. Hyatt; now U.S. Patent No. 4,029,853 issued on June 24, 1980;

(17) COMPUTERIZED MACHINE CONTROL SYSTEM S/N 476,743 filed on June 5, 1974 by Gilbert P. Hyatt; now U.S. Patent No. 4,364,110 issued on December 14, 1982;

(18) SIGNAL PROCESSING AND MEMORY ARRANGEMENT S/N 522,559 filed on November 11, 1974 by Gilbert P. Hyatt; now U.S. Patent No. 4,209,852 issued on June 24, 1980;

(19) METHOD AND APPARATUS FOR SIGNAL ENHANCEMENT WITH IMPROVED DIGITAL FILTERING S/N 550,231 filed on February 14, 1975 by Gilbert P. Hyatt; now U.S. Patent No. 4,209,843 issued on June 24, 1980;

(20) ILLUMINATION SIGNAL PROCESSING SYSTEM S/N 727,330 filed on September 27, 1976 by Gilbert P. Hyatt; now abandoned;

(21) PROJECTION TELEVISION SYSTEM USING LIQUID CRYSTAL DEVICES S/N 730,756 filed on October 7, 1976 by Gilbert P. Hyatt; now abandoned;

(22) INCREMENTAL DIGITAL FILTER S/N 754,660 filed on December 27, 1976 by Gilbert P. Hyatt; now U.S. patent No. 4,486,850 issued on December 4, 1984;

(23) MEANS AND METHOD FOR COMPUTERIZED SOUND SYNTHESIS S/N 752,240 filed on December 20, 1976 by Gilbert P. Hyatt; now abandoned;

(24) VOICE SIGNAL PROCESSING SYSTEM S/N 801,879 filed on May 13, 1977 by Gilbert P. Hyatt; now U.S. patent No. 4,144,582 issued on March 13, 1979;

(25) ANALOG READ ONLY MEMORY S/N 812,285 filed on July 1, 1977 by Gilbert P. Hyatt; now U.S. Patent No. 4,371,953 issued on February 1, 1983;

(26) DATA PROCESSOR ARCHITECTURE S/N 844,765 filed on October 25, 1977 by Gilbert P. Hyatt; now U.S. patent No. 4,523,290 issued on June 11, 1985;

(27) DIGITAL SOUND SYSTEM FOR CONSUMER PRODUCTS S/N 849,812 filed on November 9, 1977 by Gilbert P. Hyatt; still pending in the PTO;

(28) ELECTRO-OPTICAL ILLUMINATION CONTROL SYSTEM S/N 860,278 filed on December 13, 1977 by Gilbert P. Hyatt; now U.S. Patent No. 4,471,385 issued on September 11, 1984; and

(29) MEMORY SYSTEM HAVING SERVO COMPENSATION S/N 889,301 filed on March 23, 1978 by Gilbert P. Hyatt; now U.S. Patent No. 4,322,819 issued on March 30, 1982;

where all of the above listed patents and patent applications are incorporated herein by reference as if fully set forth at length herein;

where one skilled in the art will be able to combine the disclosures in said applications and patents that are incorporated by reference with the disclosure in the instant application from the disclosures therein and the disclosures herein;

where this application is further a continuation in part of ancestor applications

(30) A TRANSDUCER HAVING A VERNIER FOR IMPROVED PRECISION S/N 342,611 filed on January 25, 1982 by Gilbert P. Hyatt, et al and still pending in the PTO and

(31) INTELLIGENT TRANSDUCER S/N 342,579 filed on January 25, 1982 by Gilbert P. Hyatt and now U.S. Patent No. 4,870,559 issued on September 26, 1989

Circuit

where the benefit of the filing dates of all of the above-listed patent applications are herein claimed in accordance with the United States Code such as with 35 USC 120 and 35 USC 121 and other authorities provided therefore.--

C1

/ Page 10A inbetween lines 5 and 6, insert the following paragraph.

--A preferred embodiment disclosing coupling and connection of circuits, devices, and elements is provided in the discussions, in the tables, and in the figures herein. For example; a source circuit, device, or element generates a source signal and a distination circuit, device, or element is coupled to the source circuit, device, or element and operates in response to the source signal.--

/ Page 10A at line 36, change "multitudes" to --multitudes--.

/ Page 28 at line 1, change "an" to --a--.

/ Page 91 at line 6, change "implicitly" to --implicitly--.

/ Page 147 at line 19, change "with" to --by--.

/ Page 309 at line 17, after "again" insert --are--.